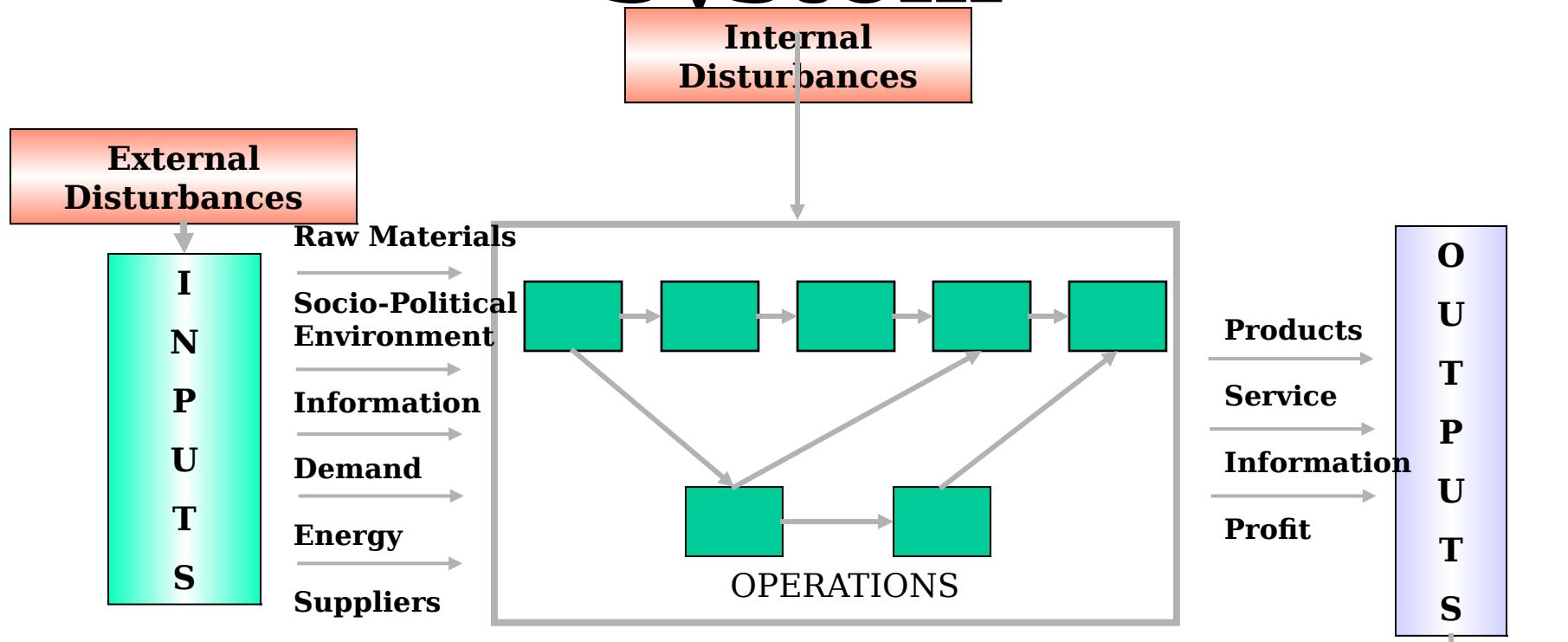


# A Manufacturing System



**Physical Objects**  
**Parameters**

Machine Tools  
Rate

Tools

Matl. Handling Equipment  
Million

People

**Measurable**

Production

Cycle Times

Defects per  
Million

Unit Cost

**Custom  
er**

# What is a Manufacturing System?

“A ROI-oriented, highly interactive network of processes through which materials and information flow.”

**Adapted from  
Hopp and  
Spearman  
Factory Physics**

# What is a Manufacturing System?

The arrangement and operation of machines, tools, people, suppliers, material and information to produce a value- added product, whose success and cost are characterized by measurable parameters.

# Why are Mfg Systems so hard to manage?

- Interactions
- Time lags
- Non-linearities
- People
- Conflicting goals
- Short-term vs Long-term benefits
- Effect of uncontrollable external forces
- Must interface with

CLASSIC SYSTEMS BEHAVIOR !  
A COMPLEX, TIGHTLY COUPLED  
NETWORK

design &  
suppliers